

No. V.—AMPHIPODA HYPERIIDEA OF THE 'SEALARK' EXPEDITION
TO THE INDIAN OCEAN.

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Read 1st April, 1909.

The following list of the Hyperiidæ of the Percy Sladen 'Sealark' expedition represents the greater part of the Plankton Amphipoda. It consists of 28 genera and 35 species, most of which are well-known pelagic forms widely distributed in tropical and subtropical seas. The occurrence of *Scina borealis*, G. O. Sars, hitherto recorded only from the Lofoten Islands, Norway, at a depth of 100–300 fms., is interesting. But how easily these animals can adapt themselves to great changes of temperature may be judged from the fact that of the 8 specimens taken 4 were from a depth of 25 fms., with a surface-temp. of 82°, while the remaining 4 profess to have been taken at a depth of 1200 fms., where the temp. would probably be near 36°. As, however, this haul (C) was not made with a closing-net, the depth at which they were taken is open to doubt. The Wolfenden and Fowler closing-nets appear to have been used six times, but tubes from only four of these contained Amphipods. These were as follows:—

- E (Wolfenden), 250 * fms. One *Hyperia bengalensis*, ♂.
 I do. 500 * ,, One *Hemityphis* young (Copepoda &c.).
 r (Fowler), 250–500 * fms. One *Stegocephalus globosus*, sp. n. (Previously described.) Two *Vibilia gracilentæ*; one *V. robusta*; one *Brachyscelus crusculum*.
 s (Fowler), 350–0 * fms. Four *Phronimella elongata*; one *Paraphronima gracilis*; one *Hemityphis crustulatus*.

In addition to these a large ovigerous female of *Platyscelus armatus* is said to have been taken "off sounding-lead" at 209 fathoms. If the specimen was in the cavity of the lead, it is almost certain that it was brought up from the bottom, an indication that this species deposits its ova or young there.

* These figures are taken from the tickets in the tubes. For localities, depths, &c., see Trans. Linn. Soc. ser. 2, Zool. vol. xii. pp. 170–174.

Fam. PHRONIMIDÆ.	DISTRIBUTION.
<i>Phronima sedentaria</i> (Forskål)	Mediterranean ; subtropical and tropical oceans of the world.
„ <i>pacifica</i> , Streets	Subtropical and tropical Atlantic and Pacific.
„ <i>curvipes</i> , Vossler	Tropical Atlantic.
<i>Phronimella elongata</i> , Claus	Mediterranean ; subtropical and tropical Atlantic, Pacific and Indian Oceans.
Fam. HYPERIIDÆ.	
<i>Phronimopsis spinifera</i> , Claus	Mediterranean ; temp. and trop. N. Atlantic.
<i>Hyperia bengalensis</i> (Giles)	Temp. S. Pacific ; Ceylon.
Fam. ANCHYLOMERIDÆ.	
<i>Euprimno macropu</i> (Guérin)	Subtrop. and trop. Atlantic and Pacific ; Indian Ocean.
<i>Anchylomera blossevillei</i> , M.-Edw.	Mediterranean ; Atlantic and other oceans.
<i>Phrosina semi-lunata</i> , Risso	Mediterranean ; Atlantic, Pacific, and Indian Oceans.
Fam. THAUMATOPSIDÆ.	
<i>Thaumatops longipes</i> , Bovallius	Tropical Atlantic, Pacific, and Indian Oceans.
Fam. PARAPHRONIMIDÆ.	
<i>Paraphronima gracilis</i> , Claus	Temp. and trop. Atlantic and Pacific.
Fam. SCINIDÆ.	
<i>Scinu cornigera</i> (M.-Edw.)	Atlantic.
„ <i>borealis</i> , G. O. Sars	Lofoten Islands.
Fam. VIBILIIDÆ.	
<i>Vibilia longipes</i> , Bovallius	S. Atlantic ; Pacific.
„ <i>viatrix</i> , Bovallius	N. and S. Atlantic ; Pacific ; Indian Ocean.
„ <i>robusta</i> , Bovallius	N. and trop. Atlantic.
„ <i>gracilentata</i> , Bovallius	Atlantic.
Fam. LANCEOLIDÆ.	
<i>Lanceola sayana</i> , Bovallius	N. and S. Atlantic.
Fam. PHORCIDÆ.	
<i>Phorcoraphis royaudii</i> (M.-Edw.)	Indian Ocean.
Fam. TYPHIDÆ.	
<i>Platyseclus armatus</i> (Claus)	Atlantic, Pacific, and Indian Oceans.
<i>Hemityphis crustulatus</i> , Claus	Zanzibar.
<i>Eutyphis ovoides</i> (Risso)	Mediterranean ; Atlantic ; N. Pacific.
Fam. PRONOIDÆ.	
<i>Pronoë capito</i> , Guérin	N. Atlantic ; S. Pacific ; Indian Ocean.
<i>Eupronoë armata</i> , Claus	Atlantic and Indian Oceans.
<i>Parapronoë clausoides</i> , Stebbing	Australia.

<i>Parapronoë crustulum</i> , Claus	Atlantic, Pacific, and Indian Oceans.
<i>Symprononæ parva</i> (Claus)	Zanzibar; Celebes and China seas.

Fam. LYCÆIDÆ.

<i>Brachyscelus cruseolum</i> , Sp. Bate	N. Pacific.
<i>Thamneus platyrrhynchus</i> , Stebbing	Australia.
<i>Lycæa similis</i> , Claus	Lagos.

Fam. OXYCEPHALIDÆ.

<i>Oxycephalus clausi</i> , Bovallius	All tropical and subtropical seas (<i>Bov.</i>).
<i>Streetsia challengerii</i> , Stebbing	N. Pacific (<i>Steb.</i>).
<i>Stebbingella typhoides</i> (Claus) ..	Ind. Ocean, Mediterranean (<i>Cls.</i>).
<i>Leptocotis tenuirostris</i> (Claus) ..	Ind. Ocean; Gilolo Strait (<i>Cls.</i>).

Fam. XIPHOCEPHALIDÆ, Bovallius, 1890.

<i>Xiphocephalus whitei</i> (Sp. Bate)	Trop. Atlantic, Pacific, and Indian Oceans (<i>Bov.</i>).
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Genus *PHRONIMA*, Latr., 1802.1. *Phronima sedentaria* (Forskål).

A. 125 fms.: one.—C. 1200 fms.: two.—*p.* 200 fms.: one jr.—*p.* 400 fms.: one.—*p.* 300 fms.: one.—*bb.* 140 fms.: two jr.—*dd.* Surface: two jr. and one ♂.—*mm.* 400 fms.: one ♀.—O. 1–180 fms.: one.—Q. Surface, one jr.—*nn.* 100 fms.: one ♀.—*q.* 1000 fms.: two large ♀s (one 38 mm.) in *Dotiotum* "house" with young.—*nn.* 200 fms.: several of various sizes.

2. *Phronima pacifica*, Streets.

q. 1000 fms.: one, length 10 mm.—*kk.* 250 fms., one jr.; and 300 fms., one ♂, 7 mm.

3. *Phronima curvipes*, Vossler.

ll. 750 fms.: one ♀, length 12 mm.

Genus *PHRONIMELLA*, Claus, 1871.4. *Phronimella elongata*, Claus.

Numerous specimens throughout the voyage; surface to 1000 fms

Genus *PHRONIMOPSIS*, Claus, 1879.5. *Phronimopsis spinifera*, Claus.

F. 25 fms.: one, length 2.75 mm.

Genus *HYPERIA*, Latreille, 18236. *Hyperia bengalensis* (Giles).

Hyperia dysschistus, Stebbing.

E. 250 fms.: one ♂, length 3 mm.—F. 25 fms. and surface: several.—*a.* 100 and 150 fms.: four.—*c.* 200 fms.: one —*i.* Surface: two ♂.—*kk.* 150 fms., one; and 300 fms., one.—*nn.* 200 fms.: one.

I have given my reasons for considering Dr. Giles's and Mr. Stebbing's species to be identical in Rep. Pearl Oyster Fisheries, part ii. (Amphipoda), p. 235.

Genus *EUPRIMNO*, Bovallius, 1887.

7. *Euprimno macropa* (Guérin).

F. 100 fms.: one jr.—O. 1.—180 fms.: one.—*a.* 25 fms., one jr.; and 50 fms., one ♂, jr.—*kk.* 200 fms., two; 250 fms., three (2 ♂); and 300 fms., one.

Genus *ANCHYLOMERA*, M.-Edw., 1830.

8. *Anchylomera blossevillei*, M.-Edw.

Q. Surface: two jr.—*n.* Surface: three jr.

Genus *PHROSINA*, Risso, 1822.

9. *Phrosina semi-lunata*, Risso.

C. 1200 fms.: one.—F. 25 fms.: one.—O. 1—180 fms.: one ♂, one ♀ jr.—*a.* 25 fms.: one ♀ jr.—*aa.* 900 fms.: one.—*nn.* 200 fms.: five.—*kk.* 300 fms.: one jr.

Genus *THAUMATOPS*, v. Martens, 1875.

(*Thaumops*, Willemoës-Suhm, 1873.)

10. *Thaumatops longipes*, Bovallius.

ll. 750 fms.: one, length 25 mm.

Genus *PARAPHRONIMA*, Claus, 1879.

11. *Paraphronima gracilis*, Claus.

A. 125 fms.: one—C. 1200 fms.: one.—N. 600 fms.: one.—*a.* 25 fms.: one jr.—*p.* 200 fms.: one ♀.—*s.* 350–0 fms.: one.—*bb.* 140 fms.: one ♂.—*nn.* 200 fms.: one ♀, length 14 mm.—*nn.* 200 fms.: one, 11 mm.—*ll.* 750 fms.: one.

Genus *SCINA*, Prestandrea, 1833.

12. *Scina cornigera* (M.-Edw.), 1830.

Scina cornigera (M.-Edw.), 1830.

Scina cornigera, Stebbing, Trans. Zool. Soc. London, vol. xiii. 1895, pp. 351, 365.

Scina edwardsi, Garbowski, Ber. Com. Erforsch. östl. Mittelmeer, 1896, p. 103.

Scina edwardsi, Vosseler, Amphipoden d. Plankton Exped. 1901.

Vosseler also refers *S. gracilis* and *S. longipes* (Dana) and *S. sarsi* and *S. atlantica* (Bov.) to this species.

mm. 400 fms.: six ♀, length 11 mm.—*nn.* 200 fms.: ten, length 9 mm.

Garbowski was evidently unaware that M.-Edwards's name had been adopted for this species by Stebbing or he would probably not have given it a new name on the ground of insufficient description.

Three small specimens (4–5 mm.) taken at *kk*, 250–300 fms., are probably young of this species, though differing in a few points, *e. g.* the 3rd joint of peræopod 3 is serrate on *both* margins.

13. *Scina borealis*, G. O. Sars.

C. 1200 fms.: four.—F. 25 fms.: four, length 5 mm.

Bovallius (Amph. Hyperiiidea, p. 17) says that the exterior rami of all the uropoda in this species are very minute. Those of the 3rd pair, however, are as described and figured by G. O. Sars (Crust. Amph. of Norway, p. 20, pl. 8), fully half as long as the inner.

Genus *VIBILIA*, M.-Edw., 1830

14. *Vibilia longipes*, Bovallius.

e. 200 fms.: one.

15. *Vibilia viatrix*, Bovallius.

F. Surface: three, length 4 mm.

16. *Vibilia robusta*, Bovallius.

p. 600 fms.: one, length 6 mm.—r. 250/500 fms.: two, 6 mm.

17. *Vibilia gracilentia*, Bovallius.

p. 600 fms.: one, length 6 mm.—r. 250/500 fms.: one.—kk. 200 and 300 fms.: three.

The occurrence of the last two species together on two occasions on the same date suggests some connexion between them. *V. gracilentia* has the hind corners of the last ural segment produced backwards, which is not the case in *V. robusta*.

Genus *LANCEOLA*, Say, 1818.

18. *Lanceola sayana*, Bovallius.

ll. 750 fms.: one.—m. 200 fms.: one.

Both specimens are imperfect.

Genus *PHORCORRHAPHIS*, Stebbing, 1888.

19. *Phorcorrhaphis raynaudii* (M.-Edw.).

Phorcorrhaphis edwardsi, Stebbing.

F. Surface: five, largest 3.5 mm.—Q. Surface: one, small.

Genus *PLATYSCELUS*, Sp. Bate, 1861.

20. *Platyscelus armatus* (Claus).

ll. 750 fms.: one ♀, length 8 mm. Amirante, Eagle I., 17/10/05, 209 fms.: one ♀ with ova, length 23 mm.; "off sounding-lead."

Genus *HEMITYPHIS*, Claus, 1879.

21. *Hemityphis crustulatus*, Claus.

F. 100 fms.: one ♂, 5 mm.—s. 350-0 fms.: one ♀, 8 mm.

The head and gnathopods agree with Claus's description of the above, but peræopod 5 with *H. tenuimanus*, Claus. Possibly they are identical.

Genus *EUTYPHIS*, Claus, 1879.

22. *Entyphis ovoides* (Risso).

q. 1000 fms. : one ♀, 15 mm.

Genus *PRONOË*, Guérin-Ménéville, 1836.

23. *Pronoë capito*, Guérin.

O. 1-180 fms. : one, 13 mm.—*mm.* 400 fms. : one, 15 mm.—*nn.* 200 fms. : one.

Genus *EUPRONOË*, Claus, 1879.

24. *Eupronoë armata*, Claus.

p. 200 fms. : one, 4 mm.

Genus *PARAPRONOË*, Claus, 1879.

25. *Parapronoë clausoides*, Stebbing.

q. 1000 fms. : one, 13 mm.—*nn.* 200 fms. : two, 15 mm.

26. *Parapronoë crustulum*, Claus.

p. 300 fms. : one ♀ with ova, 20 mm.

Genus *SYMPRONOË*, Stebbing, 1888.

27. *Sympronoë parva* (Claus).

Parapronoë parva, Claus.

q. 1000 fms. : one ♂, 6 mm.

Genus *BRACHYSCELUS*, Sp. Bate, 1861.

28. *Brachyscelus cruscolum*, Sp. Bate.

C. 1200 fms. : one, 10 mm.—*Q.* Surface : one, small.—*r.* 250-500 fms. : one, 5 mm.—*hh.* Surface : two, 5 mm.—*kk.* 200 fms. : one, small.—*ll.* 750 fms. : one ♂, 10 mm.—*nn.* 200 fms. : two, 15 mm.

Genus *THAMNEUS*, Bovallius, 1887.

29. *Thamneus platyrrhynchus*, Stebbing.

31/7/05. Surface : several ♂, ♀, and young, 5.5 mm.—*n.* Surface : one.

There is a certain amount of variation in the denticulation of the gnathopods in different individuals, and the specimen from "n" has the joints of the peræopods smooth except a few spines on the front of the 2nd joint of per. 4. It is a question whether the species is distinct from *T. rostratus*, Bov.

Genus *LYCÆA*, Dana, 1852.

30. *Lycæa similis*, Claus.

P. 20 fms. : one ♂, 7 mm.

Genus *OXYCEPHALUS*, M.-Edw., 1830.

31. *Oxycephalus clausi*, Bovallius.

O. 1-180 fms.: one ♀ with ova 37 mm., one ♂ 17 mm.—P. 20 fms.: three, one 20 mm.—*dd*. Surface: six young.—*nn*. 200 fms.: one, 28 mm.

Genus *STREETSIA*, Stebbing, 1888.

32. *Streetsia challengerii*, Stebbing.

N. 600 fms.: one ♂, 15 mm.—*nn*. 200 fms.: two 15 mm., two young.

Genus *STEBBINGELLA*, Bovallius, 1890.

33. *Stebbingella typhoides* (Claus).

e. 200 fms.: two, largest 6 mm.—*bb*. 140 fms.: one ♂, 7 mm.

Genus *LEPTOCOTIS*, Streets, 1877.

34. *Leptocotis tenuirostris* (Claus).

Y. Surface: one.—A. 100 fms.: three ♂, 12 mm.—L. 125 fms.: one ♂.—*a*. 100 fms.: one, 7.5 mm.

Genus *XIPHOCEPHALUS*, Guérin, 1841.

(= *Rhabdosoma*, Adams and White.)

35. *Xiphocephalus whitei* (Sp. Bate).

ee. Surface: one imperfect.—*nn*. 200 fms.: two ♀; length of largest, exclusive of rostrum and caudal appendages, 25 mm.